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DIVISION OF WATER QUALITY
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m/045/0049
cc: Leslie

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November 3, 2009

Mr. O. Jay Gatten
North American Exploration, Inc.
447 North 300 West
Kaysville, Utah 84037-4203

Dear Mr. Gatten:

Subject: Proposed Test Copper Heap Leach Operation, Desert Hawk Gold Corporation
Request for Information

The Division of Water Quality (DWQ) has reviewed the "Notice of Intent to Amend Large Mining Operations" which was prepared for the Division of Oil, Gas and Mining on behalf of Desert Hawk Gold Corporation. As stated in our July 14, 2009 letter, facilities associated with heap leach operations, including leach pads and process water ponds, are regulated under the Utah Ground Water Quality Protection Rules (UAC R317-6) and are the operator is required to obtain a Construction Permit and a Ground Water Quality Discharge Permit from DWQ before operations can begin. In our previous letter we indicated that these facilities may possibly qualify for ground water discharge permit-by-rule status. However, based on the size, scope, and duration of this project, a Ground Water Quality Discharge Permit will be necessary to stipulate requirements for best available technology and ground water quality monitoring and reporting. In order to proceed with the DWQ permitting process, please submit the following information as soon as possible:

1. Engineering design plans and technical specifications for the construction of the heap leach operation, including but not limited to leach pads, process water ponds, and leak detection systems. Please refer to the *Design and Construction Guidance Document for Precious Metals Heap Leach Extraction Facilities*, which can be obtained at the following URL: <http://www.waterquality.utah.gov/documents/Heapleach.final0698.PDF>
2. A Utah Ground Water Discharge Permit Application (attached), which can be obtained at the following URL: <http://www.waterquality.utah.gov/documents/finalpermitapp.pdf>. A comprehensive list of permit application requirements can be found in Section 6.3 (attached) of the Ground Water Quality Protection Rules (R317-6), which can be accessed at the following URL: <http://www.rules.utah.gov/publicat/code/r317/r317-006.htm>.

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Div. of Oil, Gas & Mining

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In addition, a *Ground Water Quality Protection Permitting Information Document* can be found at the following URL: http://www.waterquality.utah.gov/GroundWater/GWQP_PermittInfo.pdf.

In accordance with R317-6-6.9.A, compliance monitoring wells must be as close as practicable to the point of discharge. An upgradient monitoring well may not be necessary, provided that the downgradient monitor wells are sampled at least once before ore leaching begins, and the chemistry of the process water has been adequately characterized. Ground water protection levels will be established based on pre-operational background ground water quality. Therefore, an accelerated background ground water monitoring program must be conducted by collecting at least eight samples from each monitoring well over a two-year period. Ground water quality parameters should include pH, total dissolved solids, nitrate + nitrite, major ions (Na, Mg, Ca, K, Cl, SO₄, alkalinity) and metals (Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Hg, Se, Ag, Tl, Zn). After the accelerated background monitoring program has been completed and ground water protection levels have been established, compliance parameters for routine permit monitoring will be determined based on expected composition of leach solutions, which should be included in the permit application. Typically, the best leakage indicators are mobile parameters with a high contrast between leach solution concentrations and background ground water concentrations.

If you have any questions, please contact Mark Novak at mnovak@utah.gov or (801) 538-6518.

Sincerely,



Rob Herbert, P.G., Manager
Ground Water Protection Section

RFH:MTN

Attachments: (1) Utah Ground Water Discharge Permit Application
(2) Comprehensive list of permit application requirements

Tooele County Health Department
Paul Baker, DOGM Minerals Program